Table II.—The toxicity of interperitoneal injections of 2-PAM

DEATH OCCURS WITHIN 20 MIN.

Lethality	Dose (mg./kg., I. P.)
minimal lethal dose	about 100.
LD_{50}	136±6.
LD_{100}	180–200.

Table III.—Antidotal properties of 2-PAM

In the case of multiple injections of antidote the times are indicated in parenthesis. In other cases the antidote was added (I. P.) 1–2 min. after the poison (S. C.)

Paraoxon dose (mg./kg.)	2-PAM dose (mg./kg.)	dead	alive
LD_{50}=0.68	0	5	5
LD_{50}	75	0	10
LD_{100}=0.90	0	10	0
LD_{100}	75	0	10
LD_{100}	25	5	20
LD_{100}	7.5	10	0
LD_{100}	3.7(−1−2) 3.7(+10)	[1] 5	4
LD_{100}	3.7+3.7+3.7 (−1−2) (+5) (+15)	[2] 4	7

[1] One mouse of these five died before the second injection could be given.

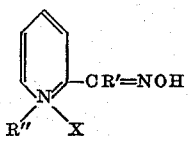
[2] Two mice of these four died before the third injection could be given.

Many inhibitors of cholinesterase produce the same phosphoryl enzyme as paraoxon. However, this is not enough to insure that a quaternary oxime will be an effective antidote for all these compounds because it is also necessary that the quaternary oxime be able to penetrate to the same vital nervous centers as the poison. One cannot predict, therefore, with certainty that the quaternary oxime will be an effective antidote for all poisons of this class, but it does appear likely that it will serve for a good number of them. Since 2-PAM is a much poorer reactivator of the serum esterase, in vitro, it may be concluded that probably only acetylcholinesterase has been reactivated in these in vivo experiments.

It will be understood from the foregoing description that, while it presents in detail the preferred procedural steps in sequential detail, it will be apparent that the invention is intended to embrace within its scope such equivalent procedures as may become suggested to one skilled in the art as being operational under ambient or procedural conditions at variance with the specifically described conditions in various ways; and accordingly, it will be understood that it is intended and desired to embrace within the scope of this invention such modifications and changes as may be necessary or desirable to adapt it to varying conditions and uses, as defined in the appended claims.

Having thus described our invention, what we claim as new and wish to secure by Letters Patent is:

1. As a new composition of matter, a new class of oximes of the general formula



wherein R′ is a member selected from the group consisting of H and lower alkyl and R″ is a radical selected

from the group consisting of methyl and ethyl groups and X represents the anionic part of the R″X salt.

2. As a new composition of matter, 2-pyridine aldoxime methiodide.

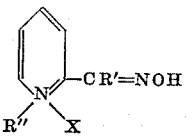
3. As a new composition of matter, 4-pyridine aldoxime methiodide.

4. As a new composition of matter, methyl-2-pyridyl ketoxime methiodide.

5. A process for producing 2-pyridine aldoxime methiodide, comprising alkylating 2-pyridine aldoxime with methyliodide.

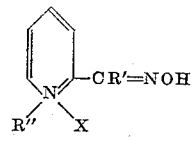
6. A process for producing 4-pyridine aldoxime methiodide, comprising alkylating 4-pyridine aldoxime with methyliodide.

7. A process for producing a new class of oximes of the general formula



wherein R′ is a member selected from the group consisting of H and lower alkyl and R″ is a radical selected from the group consisting of methyl and ethyl groups and X represents the anionic part of the R″X salt, which comprises alkylation of tertiary pyridine oximes with N-methylating agents.

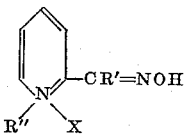
8. A process for producing a new class of oximes of the general formula



wherein R′ is a member selected from the group consisting of H and lower alkyl and R″ is a radical selected from the group consisting of methyl and ethyl groups and X represents the anionic part of the R″X salt, which comprises reacting a quaternary pyridine ketone with hydroxylamine.

9. The process claimed in claim 8 wherein the quaternary pyridine ketone is prepared from methyl-2-pyridyl ketone with excess of methyliodide in acetone at room temperature, said quaternary pyridine ketone reacted with hydroxylamine hydrochloride neutralized with sodium hydroxide to pH 6–7 to form methyl-2-pyridyl ketoxime methiodide.

10. A process for producing a new class of oximes of the general formula



wherein R′ is a member selected from the group consisting of H and lower alkyl and R″ is a radical selected from the group consisting of methyl and ethyl groups and X represents the anionic part of the R″X salt, which comprises reacting a quaternary pyridine aldehyde with hydroxylamine.

No references cited.